

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

1. Name of Property

Historic name: N/A

Other name/site number: Clear Creek Camelback Truss Bridge (preferred); 66-LT-30; A-10

2. Location On an unnamed road, 0.5 miles west of FAS 485; 6.8 miles north of the town of Baileyville.

city or town Baileyville not for publication
X vicinity
state code KS county Nemaha county code 131 zip code 66404

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this XX nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property XX meets does not meet the National Register criteria. I recommend that this property be considered significant ___ nationally XX statewide ___ locally. (___ See continuation sheet for additional comments.)

Richard D. Parkratz
Signature of certifying official

4-09-03
Date

KANSAS STATE HISTORICAL SOCIETY

State or Federal agency and bureau

In my opinion, the property ___ meets ___ does not meet the National Register criteria.
(___ See continuation sheet for additional comments.)

Signature of commenting or other official

Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby, certify that this property is:

___ entered in the National Register.

___ See continuation sheet

___ determined eligible for the National Register.

___ See continuation sheet

___ determined not eligible for the National Register.

___ removed from the National Register.

___ other, (explain:)

Signature of Keeper

Date of Action

Property Name Clear Creek Camelback Truss BridgeCounty and State Nemaha, KansasPage 2**5. Classification**

Ownership of Property

☐ private
☒ public-local
☐ public-State
☐ public-Federal

Category of Property

☐ building(s)
☐ district
☐ site
☒ structure
☐ object

No. of Resources within Property

| contributing | noncontributing |
|---------------|--------------------------|
| <u> </u> | <u> </u> buildings |
| <u> </u> | <u> </u> sites |
| <u> 1 </u> | <u> </u> structures |
| <u> </u> | <u> </u> objects |
| <u> 1 </u> | <u> 0 </u> Total |

Name of related multiple property listing:
(Enter "N/A" if property is not part of a
multiple property listing.):

Metal Truss Bridges in Kansas

No. of contributing resources previously
listed in the National Register

0**6. Functions or Use**

Historic Functions

(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

Current Functions

(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)**7. Description**

Architectural Classification

(Enter categories from instructions.)

OTHER: Camelback Truss

Materials

(Enter categories from instructions.)

Foundation ConcreteWalls Roof Other Metal: Steel

Property Name Clear Creek Camelback Truss Bridge

County and State Nemaha, Kansas

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8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☐ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

- ☐ A owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or a grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
Enter categories from instructions.)

ENGINEERING

TRANSPORTATION

Period of Significance

1930

Significant Dates

1930

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

unknown

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

Property Name Clear Creek Camelback Truss BridgeCounty and State Nemaha, KansasPage 4**9. Major Bibliographical References**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

☐ preliminary determination of individual listing
(36 CFR 67) has been requested
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings
Survey # _____
☐ recorded by Historic American Engineering

Primary location of additional data:

☒ State Historic Preservation Office
☐ Other State agency
☐ Federal agency
☒ Local government
☐ University
☐ Other

Specify repository:

Record # _____

10. Geographical DataAcreage of property <1 acre

UTM References

| | | | | | | | | | | | | | |
|---|------|-------------|---------------|---|------|---------|----------|---|---|---|---|---|---|
| 1 | 1/4 | 7/3/9/8/8/0 | 4/4/2/4/6/0/0 | 3 | / | / | / | / | / | / | / | / | / |
| | Zone | Easting | Northing | | Zone | Easting | Northing | | | | | | |
| 2 | / | / | / | / | / | / | / | / | / | / | / | / | / |
| | | | | | | | | | | | | | |

____ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared Byname/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partnerorganization Historic Preservation Services date August 5, 2002street & number 323 West Eighth Street, Suite 112 telephone (816) 221-5133city or town Kansas City state Missouri zip code 64105**Additional Documentation**

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

Property Owners (Complete this item at the request of the SHPO or FPO.)Name County of Nemahastreet & number 607 Nemaha Street telephone 785-336-2168city or town Seneca state KS zip code 66538

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**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section Number 7 Page 1

Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

DESCRIPTION

LOCATION AND SETTING

The Clear Creek Camelback Truss Bridge is located 6.8 miles north of the town of Baileyville in northeastern Kansas; on the NW ¼ of Section 28, Township 1S, Range 11E. The region is defined by rounded hills and broad, tree-lined valleys. The Clear Creek Camelback Truss Bridge carries an unnamed road across Clear Creek, a shallow branch of the South Fork Big Nemaha River. The gravel roadway, flanked by cultivated fields, aligns in an L-shaped curve with the Clear Creek Camelback Truss Bridge.

TRUSS TYPE

The Clear Creek Camelback Truss Bridge is a single span riveted pony truss¹ that measures 81 feet in length and 20½ feet in width.² Steel piles and pre-cast concrete panels form the abutments that support the end floor beams. The abutment's side walls extend approximately 12 feet along the approach grades.

Exactly five slopes form the polygonal top chord, the distinguishing characteristic of a Camelback truss, creating an arched shape. The top chords, inclined end posts, and bottom chords consist of riveted angle stock. The web members include vertical posts that form five equivalent panels and diagonal ties that intersect within the central panel. The vertical posts and diagonal ties consist of riveted angle stock.

The c. 1970³ poured concrete deck rests on a corrugated metal base. It is 20½ feet wide and rises 21 feet above the creek bed on steel I-beam stringers. Floor beams located at the base of each vertical post are structurally integrated among the stringers and connected by lower lateral bracing rods.

The historic, parallel channel and angle stock guardrails are intact along the length of the truss. Letters in relief read "INLAND" on several structural steel components.

INTEGRITY

The Clear Creek Camelback Truss Bridge is an excellent example of this bridge type, which is historically rare in Kansas.⁴ The c.1970 deck replacement does not significantly alter the overall integrity of the structure and the Clear Creek Camelback Truss Bridge retains a good degree of integrity. The original workmanship, materials, design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a secondary road, it is unlikely that traffic requirements will necessitate alteration or replacement.

¹ A pony truss is also referred to as a low truss.

² The length equals the distance between abutments; the width equals the deck width.

³ Janet Upden, Nemaha County Engineer, interview with author, 9 May 2002.

⁴ Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*. (Topeka: Kansas State Historical Society, 1998), 6. Nimz stated there were approximately 15 extant Camelback trusses in Kansas.

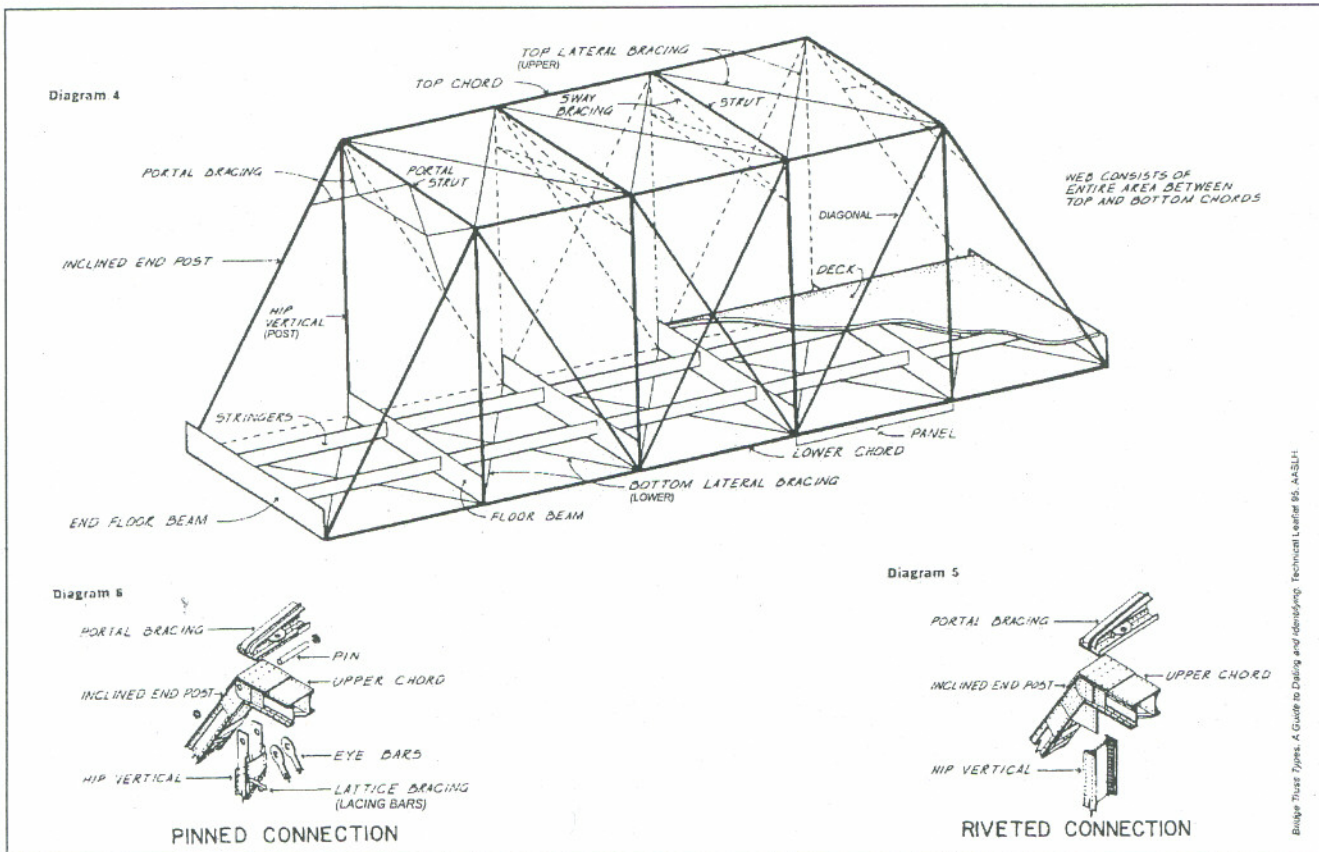
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Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

TRUSS TERMINOLOGY



Bridge Truss Types: A Guide to Dating and Identifying, Technical Leaflet 95, AASLH

Vermont Truss Bridges and Maintenance, Vermont Bridge Program, 2000

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**NATIONAL REGISTER OF HISTORIC PLACES
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Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

STATEMENT OF SIGNIFICANCE

The Clear Creek Camelback Truss Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined by the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas*, it is an excellent example of the Camelback truss bridge type. Built in 1930,¹ the Clear Creek Camelback Truss Bridge represents an uncommon solution for a relatively short span. Its riveted structure and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance. As no historic name identifies this bridge, the preferred name "Clear Creek Camelback Truss Bridge" has been assigned. This describes the location, design, and function of the structure.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.² Proximity to a bridge often secured a town's economic stability, and it contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel and there was little need for roads to extend more than a few dozen miles. With little stimulus for improving roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common.

The range of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies that had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century, the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.³

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

¹ Janet Upden, Nemaha County Engineer, interview with author, 9 May 2002.

² Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E.

³ Ibid, F.

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Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.⁴ However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid riveting technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted structure of the Clear Creek Camelback Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The steel pile and concrete panel abutments are unique in form, however the materials are typical of bridges built during this period.

The Clear Creek Camelback Truss Bridge is a classic example of this truss design. The Camelback truss is a variation of the Parker truss, itself a variation of the Pratt truss. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required length of compression members, helping to prevent bending or buckling. The Pratt truss was the most common truss type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.⁵

The Parker truss is a Pratt truss with a polygonal top chord. This variation increased truss strength while using the same amount of material, however the lack of uniformity among members often led to increased construction costs.⁶ The Camelback truss is a variation of the Parker truss in which the polygonal top chord has exactly five slopes. This design allowed for better stress distribution as the distance between the bottom and top chords could be increased at the center of the span where the stresses were greatest.⁷ In addition, the five, equal slopes of the Camelback truss design allowed for greater standardization of its members, which increased the economy of construction.⁸ The Camelback truss bridge type continued to be constructed into the twentieth century in Kansas, however it was never widespread.⁹ In 1998, approximately 15 Camelback truss bridges, including the Clear Creek Camelback Truss Bridge, existed throughout the state of Kansas.¹⁰

⁴ Ibid, F.

⁵ T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying*. (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.

⁶ Ibid.

⁷ Jochims, E2.

⁸ Comp, 8.

⁹ Jochims, E2.

¹⁰ Nimz, 6.

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Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

STRUCTURE HISTORY

The nearby town of Baileyville was originally known as "Haytown" for the enormous quantities of prairie hay that were shipped out during the 1870s on the passing Union Pacific Railroad (Kansas Division). Once officially laid out by settler N. Bailey, the Kansas Division of the Union Pacific Railroad Company established a regular station stop at Baileyville, including a depot and post office. During the late nineteenth century, Baileyville supported a hardware store, furniture store, doctor's office, barbershop, millinery, telephone office, mill, and an elevator. By the late 1930s, Baileyville continued to support steady commercial activity and maintained a population of over 630 residents. Typical of small towns throughout Kansas, it served as a trading and shipping point for the surrounding rural community. As a result, fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy.

According to Nemaha County Road and Bridge records, the Clear Creek Camelback Truss Bridge was constructed in 1930. While the builder of this bridge is unknown, markings on the structural members indicate that Inland Steel Company of Chicago, Illinois produced the stock metal. Nemaha County Road and Bridge crews installed the existing deck c.1970. No further construction history has presently been located.¹¹

¹¹ Inquiry into the Nemaha County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, and *Western Contractor* revealed no further construction history specific to the Clear Creek Camelback Truss Bridge.

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Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

BIBLIOGRAPHY

Comp, T. Allan and Donald Jackson. *Bridge Truss Types: A guide to dating and identifying*. Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95.

William G. Cutler. *History of the State of Kansas*. Chicago: A. T. Andreas, 1883.

Delaware Historic Bridges, Survey and Evaluation. Historic Architecture and Engineering Series, No. 89. Dover: Delaware Department of Transportation, Division of Highways, 1991.

Historic Highway Bridges in Pennsylvania. Harrisburg: Pennsylvania Department of Transportation and Pennsylvania Historical and Museum Commission, 1986.

"History of Baileyville, Kansas, The," *Untitled Document* [article on-line]; available from <http://bbh.usd451.k12.ks.us/SCHOOL/HISTORY/Bailey/old%20baileyville.html>; Internet; accessed 21 June 2002.

"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from <http://www.andrew.cmu.edu/user/vck/pghretro.htm>; Internet; accessed 18 March 2002.

Jochims, Larry. *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*. Topeka: Kansas State Historical Society, 1989.

Jochims, Larry. *Riley Creek Bridge, National Register of Historic Places Registration Form*. Topeka: Kansas State Historical Society, 1989.

Kansas Historic Bridge Rating System, Kansas Department of Transportation, 1980-1983.

Nimz, Dale E. *Activity III Review Initial Assessment Metal Truss Bridges*. Topeka: Kansas State Historical Society, 1998.

The Second Ohio Historic Bridge Inventory: Evaluation and Preservation Plan. Columbus: Ohio Department of Transportation, 1990.

Vermont Truss Bridges and Maintenance. Vermont Bridge Program, 2000.

WPA Guide to 1930s Kansas. Lawrence: University of Kansas Press, 1984.

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Section Number 10 Page 7

Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

GEOGRAPHICAL DATA

Verbal Boundary Description:

Located on the NW $\frac{1}{4}$ of Section 28, Township 1S, Range 11E, the Clear Creek Camelback Truss Bridge encompasses an area measuring approximately 81 feet by 20 $\frac{1}{2}$ feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

Boundary Justification:

The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.

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CONTINUATION SHEET**

Section - Photographic Documentation Page 8

Clear Creek Camelback Truss Bridge
Nemaha County, Kansas

PHOTO LOG

Photographer: Kerry Davis
Date of Photographs: May 2002
Location of Original Negative: Kansas State Historical Society, Topeka, Kansas

| Photograph Number | Camera View |
|-------------------|---|
| 1. | View N, bridge truss and deck |
| 2. | View SE, bridge truss and roadway |
| 3. | View N, bridge truss and understructure |
| 4. | View N, upper node detail |
| 5. | View NW, lower node detail |
| 6. | View W, west abutment and bridge understructure |

